AD-A073 390 ARMY ELECTRONICS RESEARCH AND DEVELOPMENT COMMAND WS--ETC F/G 4/2
193048 GSRS, MISSILE NUMBERS 1029, 1050, 1054, 1073, 1074, 1056--ETC(U)
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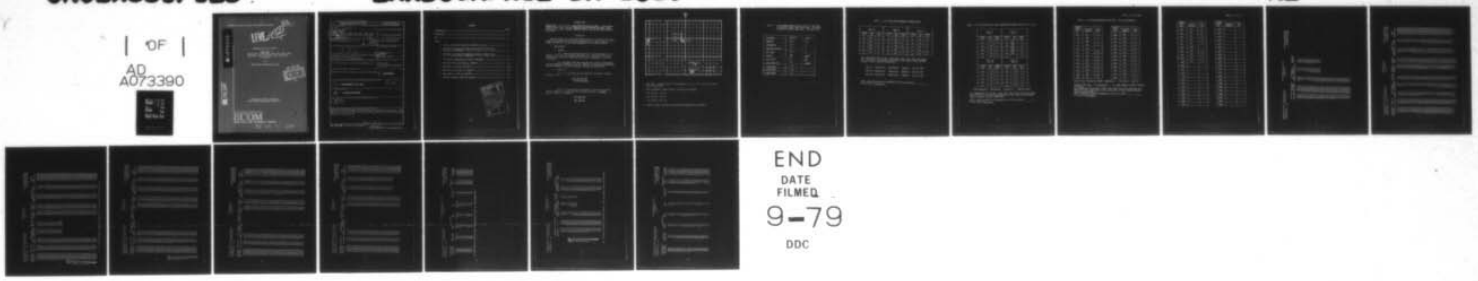

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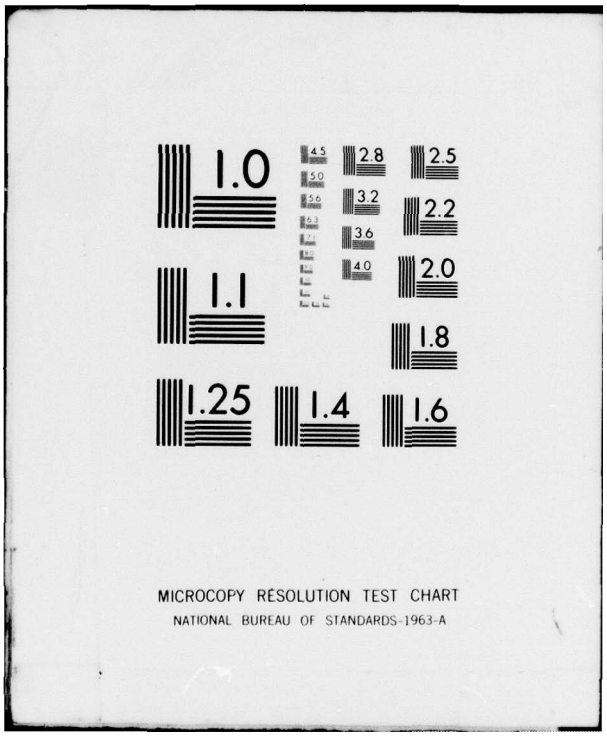
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NATIONAL BUREAU OF STANDARDS-1963-A

DR 1039
JULY 1979
AD

METEOROLOGICAL DATA REPORT

19304B GSRS
Missile Nos. 1029, 1050, 1054, 1073, 1074, 1056
Round Nos. V-49, V-50, V-51, V-52, V-53, V-54
2 July 1979

by

White Sands Meteorological Team

ATMOSPHERIC SCIENCES LABORATORY
WHITE SANDS MISSILE RANGE, NEW MEXICO

ECOM
UNITED STATES ARMY ELECTRONICS COMMAND

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE

READ INSTRUCTIONS BEFORE COMPLETING FORM

1. REPORT NUMBER: DR 1039 (Numbers)
2. GOVT ACCESSION NO.
3. RECIPIENT'S CATALOG NUMBER

4. TITLE (and Subtitle): 19304B GSRS Missile Nos. 1029, 1050, 1054, 1073, 1074, 1056, Round Nos. V-49, V-50, V-51, V-52, V-53, V-54. (Numbers) 2 July 1979.
5. TYPE OF REPORT & PERIOD COVERED
6. PERFORMING ORG. REPORT NUMBER

7. AUTHOR(s): White Sands Meteorological Team
8. CONTRACT OR GRANT NUMBER(s): DA Task 1T6657-2D126-02

9. PERFORMING ORGANIZATION NAME AND ADDRESS (12) 19 pp
10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS

11. CONTROLLING OFFICE NAME AND ADDRESS: US Army Electronics Research & Development Comd, Atmospheric Sciences Laboratory, White Sands Missile Range, New Mexico (11)
12. REPORT DATE: JULY 1979
13. NUMBER OF PAGES

14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office): US Army Electronics research & Development Comd
15. SECURITY CLASS. (of this report): UNCLASSIFIED
15a. DECLASSIFICATION/DOWNGRADING SCHEDULE

16. DISTRIBUTION STATEMENT (of this Report): Approved for public release; distribution unlimited. (16) 1T665702D126

17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report): (9) Meteorological data rept. (17) 02

18. SUPPLEMENTARY NOTES: (14) ERADCOM/ASL-DR-1039

19. KEY WORDS (Continue on reverse side if necessary and identify by block number)
1.. Ballistics
2. Meteorology
3. Wind

20. ABSTRACT (Continue on reverse side if necessary and identify by block number)
Meteorological data gathered for the launching of 19304B GSRS, Missile Nos. 1029, 1050, 1054, 1073, 1074, 1056, Round, Nos. V-49, V-50, V-51, V-52, V-53, V-54, are presented in tabular form.

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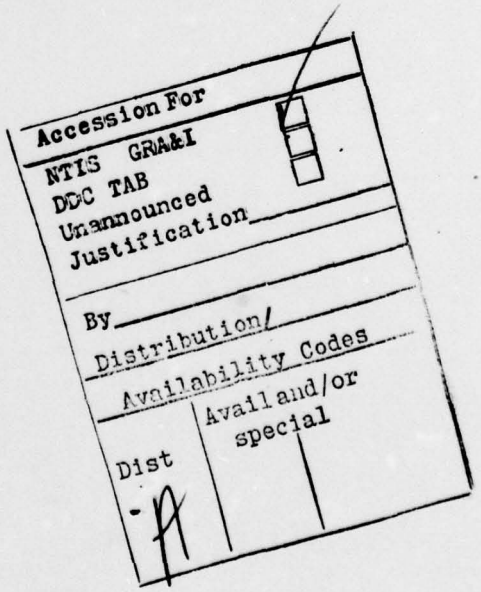
CONTENTS



INTRODUCTION

19304B GSRS , Missile Numbers 1029,1050,1054,1073,1074,1056 Round Numbers V-49 thru V-54 , were launched from LC-33, White Sands Missile Range (WSMR), New Mexico, at 1430, 1430:02, 1430:05, 1430:07, 1430:09 and 1430:12 MDT, on 2 July 1979

DISCUSSION

Meteorological data were recorded and reduced by the White Sands Meteorological Team, Atmospheric Sciences Laboratory (ASL), White Sands Missile Range, New Mexico. The data were obtained by the following methods:

1. Observations

a. Surface

(1) Standard surface observations to include pressure, temperature (°C), relative humidity, dew point (°C), density (gm/m^3), wind direction and speed, and cloud cover were made at the LC-33 Met Site at T-0 minutes.

(2) Anemometer data were provided from existing pole-mounted and tower-mounted anemometers at LC-33. Monitor of wind speed and direction from one anemometer was also provided in the launch control room.

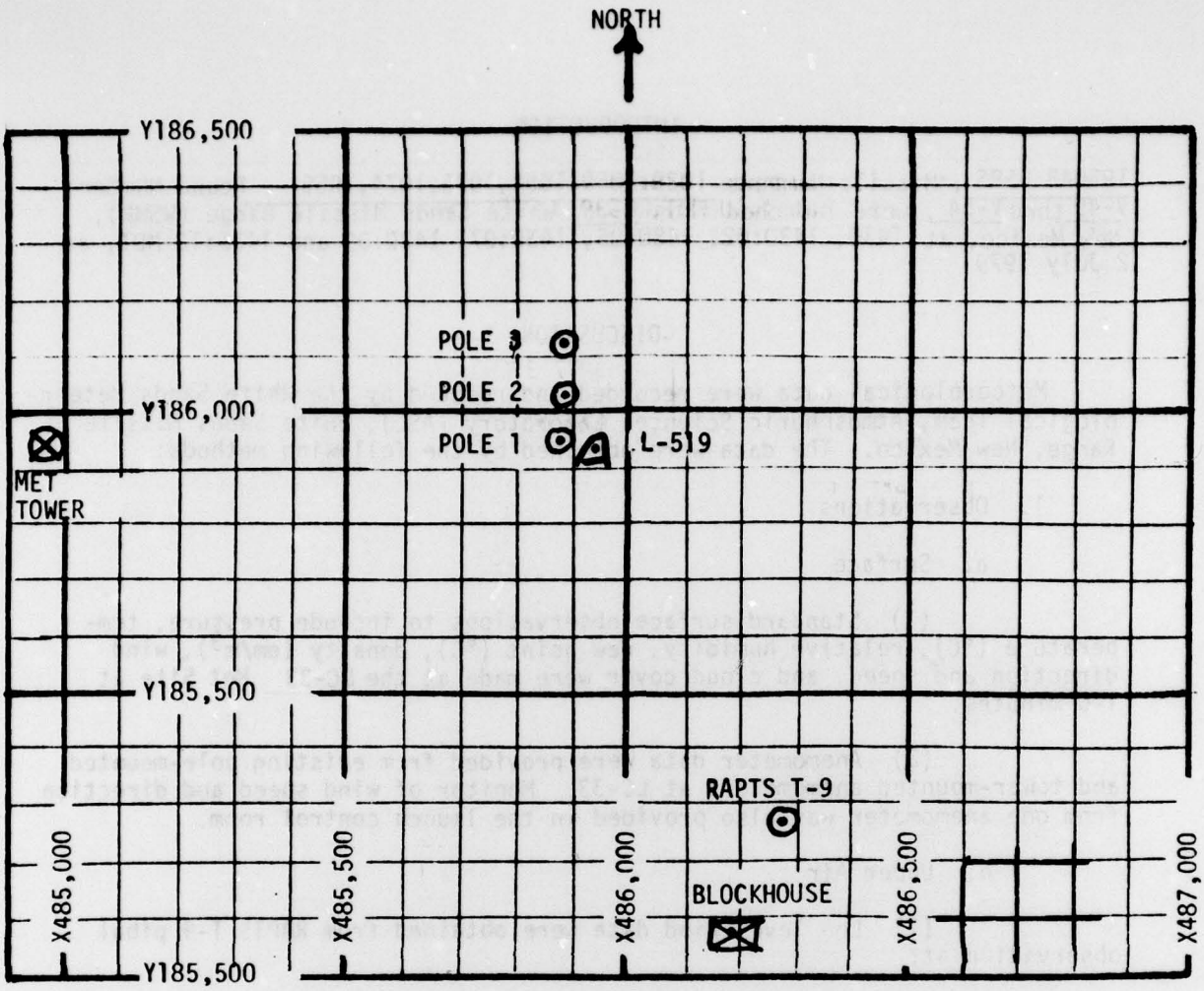
b. Upper Air

(1) Low level wind data were obtained from RAPTS T-9 pibal observation at:

SITE AND ALTITUDE
LC-33 1050 meters

(2) Air structure data (rawinsonde) were collected at the following Met Sites. Data were collected from surface to 100,500 feet in 500-feet increments.

SITE AND TIME
SMR 1330 MST



1. MET TOWER - 4 Bendix Model T-120 Anemometers at 12 ft, 62 ft, 102 ft and 202 ft with E/A recorders.

2. POLE ANEMOMETER - Bendix Model T-120 with E/A recorders.

   (a) Pole #1 - 38.7 ft

   (b) Pole #2 - 53.0 ft

   (c) Pole #3 - 83.6 ft

3. RAPTS T-9 Radar Automatic Pilot-Balloon Tracking System T-9 Radar.

TABLE 1. Surface Observatfons taken at LC-33, 2 July 1979 at 1430 MDT, 19304B GSRS, Missile Nos., 1029,1050, 1054,1073,1074,1056, Round Nos., V-49 thru V-54.

ELEVATION	3977.30	FT/MSL
PRESSURE	878.0	MBS
TEMPERATURE	33.2	°C
RELATIVE HUMIDITY	26	%
DEW POINT	11.0	°C
DENSITY	992	GM/M^3
WIND SPEED	02	MPH
WIND DIRECTION	035	DEGREES
CLOUD COVER	3 cu	
CLOUD COVER	1 ac	
CLOUD COVER	2 ci	

TABLE 2. LC-33 FIXED POLE ANEMOMETER-MEASURED WINDS

POLE #1			POLE #2			POLE #3		
T-TIME SEC	DIR DEG	SPEED MPH	T-TIME SEC	DIR DEG	SPEED MPH	T-TIME SEC	DIR DEG	SPEED MPH
-30	000	00	-30	018	1.0	-30	356	4.0
-20	000	00	-20	000	00	-20	335	4.0
-10	000	00	-10	000	00	-10	285	3.0
0.0	000	00	0.0	029	2.0	0.0	307	4.0
+10	000	00	+10	068	3.0	+10	342	6.0

Type 19304B GSRS, Missile Nos., 1029, 1050, 1054, 1073, 1074, 1056, Round Nos., V-49 thru V-54, launched from LC33 on 2 July 1979 at 1430, 1430:02, 1430:05, 1430:07, 1430:09, 1430:12 MDT.

POLE #1 = X485,874.29 Y185,958.90 H4018.74 38.7 ft. AGL

POLE #2 = X485,874.93 Y186,012.00 H4033.57 53.0 ft. AGL

POLE #3 = X485,877.29 Y186,116.06 H4063.92 83.6 ft. AGL

NOTE: Wind directions are referenced to the firing azimuth _____ or true north true north .

TABLE 3. LC-33 METEOROLOGICAL TOWER ANEMOMETER-MEASURED WINDS (202 FT. TOWER)

LEVEL #1 12 ft.			LEVEL #2 62 ft.		
T-TIME SEC	DIR DEG	SPEED MPH	T-TIME SEC	DIR DEG	SPEED MPH
-30	297	4.0	-30	MISSING	4.0
-20	298	3.0	-20	MISSING	4.0
-10	298	3.0	-10	MISSING	2.0
0.0	303	2.0	0.0	MISSING	2.0
+10	303	2.0	+10		2.0
LEVEL #3 102 ft.			LEVEL #4 202 ft.		
T-TIME SEC	DIR DEG	SPEED MPH	T-TIME SEC	DIR DEG	SPEED MPH
-30	302	30	-30	312	2.0
-20	303	2.0	-20	317	2.0
-10	330	1.0	-10	312	2.0
0.0	317	2.0	0.0	297	2.0
+10	310	1.0	+10	309	2.0

WTSM Coordinates: X484,982.64 Y185,957.73 H3983.00 (base)

Type 19304B GSRS, Missile Nos., 1029, 1050, 1054, 1073, 1074, 1056, Round Nos., V-49 thru V-54 launched from LC-33 on 2 July 1979 at 1430, 1430:02 1430:05, 1430:07, 1430:09, 1430:12 MDT.

NOTE: Wind directions are referenced to the firing azimuth _____ or true north true north .

TABLE 4. PILOT-BALLOON-MEASURED WIND DATA (30-METER INCREMENTS)

HEIGHT METERS AGL	DIRECTION DEGREES	SPEED MPH
SFC	035	2.0
30	038	1.5
60	040	1.0
90	043	0.5
120	CALM	
150	038	1.0
180	022	3.0
210	014	4.0
240	038	4.0
270	062	4.0
300	086	4.0
330	109	4.0
360	085	4.5

HEIGHT METERS AGL	DIRECTION DEGREES	SPEED MPH
390	060	5.0
420	035	5.5
450	010	6.0
480	014	7.0
510	018	8.0
540	022	9.0
570	026	9.5
600	013	8.5
630	360	7.0
660	347	6.0
690	333	4.5
720	355	4.5
750	016	4.5

Release Point Coordinates (WSTM): X486,037.24 Y 182,350.16 H3977.30

Released from LC-33 on 2 July 1979 at 1430, 1430:02, 1430:05, 1430:09, and 1430:12.
Type 19304B GSRS, Missile Nos., 1029, 1050, 1054, 1073, 1074, 1056 Round Nos., V-49 thru V-54 launched from LC-33 on 2 July 1979 at 1430, 1430:02, 1430:05, 1430:07, 1430:09, 1430:12.
NOTE: Wind directions are referenced to the firing azimuth _____ or true north true north .

HEIGHT METERS AGL	DIRECTION DEGREES	SPEED MPH
780	037	4.5
810	058	4.0
840	044	3.0
870	029	2.0
900	015	1.0
930	CALM	
960	348	0.5
990	336	1.0
1020	324	1.5
1050	312	1.5
1080		
1110		
1140		
1170		
1200		
1230		
1260		
1290		
1320		
1350		
1380		
1410		

HEIGHT METERS AGL	DIRECTION DEGREES	SPEED MPH
1440		
1470		
1500		
1530		
1560		
1590		
1620		
1650		
1680		
1710		
1740		
1770		
1800		
1830		
1860		
1890		
1920		
1950		
1980		
2010		
2040		
2070		

STATION ALTITUDE 3997.30 FEET MSL
2 JULY 79 1330 HRS MST
ASCENSION NO. 224

SIGNIFICANT LEVEL DATA
1830060224
S M R

GEODETIC COORDINATES
32.48034 LAT DEG
106.42307 LON DEG

PRESSURE MILLIBARS	GEOMETRIC ALTITUDE MSL FEET	TEMPERATURE AIR DEGREES CENTIGRADE	TEMPERATURE DEWPOINT CENTIGRADE	REL.HUM. PERCENT
877.1	3997.3	31.6	13.8	34.0
850.0	4918.3	28.6	9.3	30.0
760.4	8122.2	19.8	8.8	49.0
700.0	10438.0	12.2	7.1	71.0
657.2	12165.6	7.4	5.9	90.0
633.2	13172.9	6.4	-1.2	58.0
600.6	14593.8	3.9	-2.3	64.0
564.6	16234.1	-.6	-5.6	68.0
547.2	17055.4	-2.2	-7.7	66.0
530.2	17878.8	-3.3	-15.9	37.0
500.0	19396.0	-6.4	-19.6	34.0
466.2	21189.0	-8.4	-31.8	13.0
407.6	24564.3	-16.5	-36.4	13.0
400.0	25029.6	-16.9	-38.0	14.0
380.4	26267.3	-18.3	-42.3	10.0
306.6	31444.5	-30.1	-50.2	12.0
300.0	31953.0	-31.6		
250.0	36105.3	-42.5		
200.0	40961.1	-52.9		
189.4	42112.9	-55.3		
173.2	43988.7	-56.4		
157.8	45914.2	-61.6		
150.0	46947.7	-62.5		
129.4	49916.5	-67.7		
109.2	53266.9	-70.0		
100.0	55005.6	-67.5		
84.4	58397.0	-65.1		
81.4	59131.8	-61.2		
72.8	61414.0	-62.4		
70.0	62218.3	-59.8		
50.0	69230.7	-55.7		
47.2	70449.5	-53.6		
33.6	77740.6	-49.6		
30.0	80188.9	-50.7		
20.0	89016.0	-46.4		
11.8	100938.9	-34.1		

STATION ALTITUDE 3997.30 FEET MSL
2 JULY 79 1330 HRS MST
ASCENSION NO. 224

UPPER AIR DATA
1830060224
S M R

GEODETIC COORDINATES
32.48034 LAT DEG
106.42307 LON DEG

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES	TEMPERATURE DEWPOINT CENTIGRADE	REL.HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
3997.3	877.1	31.6	13.8	34.0	995.8	682.4	150.0	3.1	1.000287
4000.0	877.0	31.6	13.8	34.0	995.7	682.4	149.9	3.1	1.000286
4500.0	862.2	30.0	11.4	31.8	985.1	680.3	129.1	2.9	1.000275
5000.0	847.6	28.4	9.4	30.5	974.1	678.3	108.1	3.1	1.000266
5500.0	833.0	27.0	9.6	33.4	961.5	676.8	91.4	3.6	1.000265
6000.0	818.6	25.6	9.6	36.4	949.2	675.3	79.7	4.3	1.000262
6500.0	804.5	24.3	9.6	39.4	937.1	673.7	71.6	5.2	1.000260
7000.0	790.7	22.9	9.4	42.3	925.2	672.2	66.9	5.2	1.000257
7500.0	777.0	21.5	9.2	45.3	913.5	670.6	64.3	2.6	1.000254
8000.0	763.6	20.1	8.9	48.3	901.9	669.1	329.1	.2	1.000251
8500.0	750.2	18.6	8.7	52.6	890.8	667.3	253.9	2.5	1.000249
9000.0	736.9	16.9	8.4	57.3	880.0	665.4	248.6	3.9	1.000246
9500.0	723.9	15.3	8.1	62.1	869.4	663.5	246.3	5.4	1.000243
10000.0	711.0	13.6	7.6	66.8	858.9	661.6	249.3	5.7	1.000240
10500.0	698.4	12.0	7.1	71.7	848.5	659.7	258.0	5.0	1.000236
11000.0	685.8	10.6	6.8	77.2	837.2	658.1	268.1	5.9	1.000233
11500.0	673.4	9.2	6.5	82.7	826.2	656.5	273.1	8.6	1.000230
12000.0	661.2	7.9	6.0	88.2	815.3	654.8	269.4	11.7	1.000227
12500.0	649.1	7.1	3.7	79.4	803.2	653.7	262.7	15.3	1.000218
13000.0	637.3	6.6	.2	63.5	790.7	652.8	256.1	17.7	1.000206
13500.0	625.5	5.8	-1.5	59.4	778.5	651.8	249.9	19.6	1.000200
14000.0	614.0	4.9	-1.8	61.5	766.6	650.7	246.8	21.2	1.000197
14500.0	602.7	4.1	-2.2	63.6	754.9	649.7	244.5	22.7	1.000194
15000.0	591.5	2.8	-3.1	65.0	744.4	648.1	244.4	23.9	1.000190
15500.0	580.4	1.4	-4.2	66.2	734.3	646.5	244.6	25.0	1.000186
16000.0	569.6	.0	-5.3	67.4	724.3	644.8	244.6	25.0	1.000182
16500.0	558.9	-1.1	-6.4	67.4	713.9	643.4	244.6	25.0	1.000178
17000.0	548.4	-2.1	-7.5	66.1	703.1	642.2	244.1	24.3	1.000175
17500.0	538.0	-2.8	-11.7	50.3	692.8	641.1	242.7	22.9	1.000167
18000.0	527.7	-3.5	-16.2	36.8	681.0	640.1	241.8	21.7	1.000161
18500.0	517.6	-4.6	-17.4	35.8	670.6	638.8	243.3	21.0	1.000158
19000.0	507.7	-5.6	-18.6	34.8	660.4	637.6	244.2	21.1	1.000155
19500.0	498.0	-6.5	-20.2	32.8	650.0	636.4	244.0	22.7	1.000151
20000.0	488.3	-7.1	-22.9	26.9	638.9	635.7	241.3	23.1	1.000147
20500.0	478.9	-7.6	-26.1	21.1	628.0	635.0	235.9	22.2	1.000144
21000.0	469.7	-8.2	-30.0	15.2	617.2	634.3	231.6	17.9	1.000140
21500.0	460.5	-9.1	-32.4	13.0	607.4	633.1	225.2	14.9	1.000137
22000.0	451.4	-10.3	-33.4	13.0	598.2	631.6	216.8	13.0	1.000135
22500.0	442.5	-11.5	-34.4	13.0	589.1	630.2	214.1	12.9	1.000133
23000.0	433.8	-12.7	-35.3	13.0	580.2	628.7	209.3	13.3	1.000131

UPPER AIR DATA
1830060224
S M R

STATION ALTITUDE 3997.30 FEET MSL
2 JULY 79 1330 HRS MST
ASCENSION NO. 264

GEODETIC COORDINATES
32.48034 LAT DEG
106.42307 LON DEG

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES	TEMPERATURE DEWPOINT CENTIGRADE	REL.HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
23500.0	425.2	-13.9	-36.3	13.0	571.4	627.3	210.1	14.7	1.000129
24000.0	416.9	-15.1	-37.3	13.0	562.7	625.8	212.5	16.8	1.000127
24500.0	408.6	-16.3	-38.2	13.0	554.2	624.4	212.8	18.6	1.000125
25000.0	400.5	-16.9	-38.0	13.9	544.3	623.7	211.7	20.4	1.000123
25500.0	392.4	-17.4	-39.5	12.5	534.5	623.0	210.2	21.4	1.000120
26000.0	384.5	-18.0	-41.3	10.9	525.0	622.3	208.2	21.7	1.000118
26500.0	376.7	-18.8	-42.6	10.1	516.0	621.3	205.3	22.2	1.000116
27000.0	369.0	-20.0	-43.4	10.3	507.6	619.9	201.9	22.9	1.000114
27500.0	361.4	-21.1	-44.1	10.5	499.4	618.5	199.3	23.9	1.000112
28000.0	353.9	-22.2	-44.8	10.7	491.3	617.1	197.2	25.0	1.000110
28500.0	346.6	-23.4	-45.6	10.9	483.4	615.7	195.0	25.0	1.000108
29000.0	339.5	-24.5	-46.4	11.1	475.6	614.3	192.6	24.7	1.000106
29500.0	332.5	-25.7	-47.1	11.2	468.0	612.9	192.1	24.5	1.000105
30000.0	325.6	-26.8	-47.9	11.4	460.4	611.5	191.9	24.2	1.000103
30500.0	318.9	-27.9	-48.7	11.6	453.0	610.1	190.4	23.6	1.000101
31000.0	312.3	-29.1	-49.5	11.8	445.8	608.6	202.4	23.2	1.000100
31500.0	305.9	-30.3	-51.3	10.7**	438.7	607.2	207.0	23.1	1.000098
32000.0	299.4	-31.7			432.0	605.3	210.7	23.0	1.000096
32500.0	292.9	-33.0			424.9	603.7	210.9	23.5	1.000095
33000.0	286.5	-34.3			418.0	602.0	208.5	24.4	1.000093
33500.0	280.3	-35.7			411.2	600.4	207.7	25.2	1.000092
34000.0	274.2	-37.0			404.5	598.7	208.6	26.0	1.000090
34500.0	268.3	-38.3			397.9	597.0	210.0	26.4	1.000089
35000.0	262.4	-39.6			391.4	595.4	214.6	25.8	1.000087
35500.0	256.7	-40.9			385.1	593.7	218.7	25.6	1.000086
36000.0	251.2	-42.2			378.9	592.0	221.9	26.5	1.000084
36500.0	245.5	-43.3			372.2	590.6	224.9	27.7	1.000083
37000.0	239.9	-44.4			365.4	589.2	228.1	33.6	1.000081
37500.0	234.5	-45.5			358.8	587.9	230.3	39.5	1.000080
38000.0	229.2	-46.5			352.2	586.5	230.1	45.4	1.000078
38500.0	223.9	-47.6			345.9	585.1	229.9	51.2	1.000077
39000.0	218.9	-48.6			339.6	583.7	229.5	51.2	1.000076
39500.0	213.9	-49.7			333.5	582.4	229.2	51.2	1.000074
40000.0	209.0	-50.8			327.4	581.0	229.7	49.9	1.000073
40500.0	204.3	-51.8			321.5	579.6	230.4	48.4	1.000072
41000.0	199.6	-52.9			315.7	578.2	231.3	47.7	1.000070
41500.0	195.0	-54.0			309.9	576.8	232.4	47.8	1.000069
42000.0	190.4	-55.1			304.1	575.3	233.1	47.3	1.000068
42500.0	185.9	-55.5			297.6	574.7	232.3	44.4	1.000066
43000.0	181.6	-55.8			291.0	574.3	231.5	41.5	1.000065

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3997.30 FEET MSL
2 JULY 79 1330 HRS MST
ASCENSION NO. 224

UPPER AIR DATA
163006O224
S M R

GEODETIC COORDINATES
32.48034 LAT DEG
106.42307 LON DEG

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	TEMPERATURE DEWPOINT CENTIGRADE	REL.HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
43500.0	177.3	-56.1			284.6	573.9	226.9	38.4	1.000063
44000.0	173.1	-56.4			278.3	573.5	220.8	35.6	1.000062
44500.0	169.0	-57.8			273.3	571.7	216.4	34.8	1.000061
45000.0	164.9	-59.1			268.5	569.9	214.1	35.4	1.000060
45500.0	161.0	-60.5			263.7	568.1	212.5	36.0	1.000059
46000.0	157.1	-61.7			258.9	566.5	212.3	36.4	1.000058
46500.0	153.3	-62.1			253.1	566.0	212.1	36.9	1.000056
47000.0	149.6	-62.6			247.5	565.3	210.4	34.8	1.000055
47500.0	145.9	-63.5			242.5	564.1	208.4	32.7	1.000054
48000.0	142.3	-64.3			237.5	562.9	207.4	31.5	1.000053
48500.0	138.8	-65.2			232.6	561.8	207.1	31.1	1.000052
49000.0	135.4	-66.1			227.9	560.6	207.0	30.9	1.000051
49500.0	132.1	-67.0			223.2	559.4	207.5	32.0	1.000050
50000.0	128.9	-67.8			218.5	558.3	208.0	33.1	1.000049
50500.0	125.6	-68.1			213.4	557.9	207.4	33.1	1.000048
51000.0	122.5	-68.4			208.4	557.4	206.7	33.0	1.000046
51500.0	119.4	-68.8			203.6	556.9	205.4	32.5	1.000045
52000.0	116.4	-69.1			198.8	556.5	203.4	31.5	1.000044
52500.0	113.5	-69.5			194.2	556.0	201.3	30.4	1.000043
53000.0	110.7	-69.8			189.6	555.5	199.0	27.9	1.000042
53500.0	107.9	-69.7			184.8	555.7	196.3	25.4	1.000041
54000.0	105.2	-68.9			179.5	556.7	193.1	23.5	1.000040
54500.0	102.6	-68.2			174.4	557.7	189.5	21.8	1.000039
55000.0	100.0	-67.5			169.5	558.7	185.6	20.6	1.000038
55500.0	97.6	-67.2			165.0	559.2	181.8	20.4	1.000037
56000.0	95.1	-66.8			160.6	559.6	178.0	20.4	1.000036
56500.0	92.8	-66.4			156.4	560.1	176.1	20.4	1.000035
57000.0	90.5	-66.1			152.3	560.6	174.8	20.6	1.000034
57500.0	88.3	-65.7			148.3	561.1	173.3	20.6	1.000033
58000.0	86.1	-65.4			144.3	561.5	170.8	20.3	1.000032
58500.0	84.0	-64.6			140.2	562.7	168.3	20.0	1.000031
59000.0	81.9	-61.9			135.1	560.2	163.9	20.4	1.000030
59500.0	79.9	-61.4			131.5	560.9	171.2	21.1	1.000029
60000.0	78.0	-61.7			128.5	560.6	173.3	21.9	1.000029
60500.0	76.1	-61.9			125.6	560.2	175.1	21.1	1.000028
61000.0	74.3	-62.2			122.7	559.9	172.8	20.3	1.000027
61500.0	72.5	-62.1			119.7	560.2	166.2	18.4	1.000027
62000.0	70.7	-60.5			115.9	560.1	154.7	15.4	1.000026
62500.0	69.1	-59.6			112.7	559.3	136.3	13.6	1.000025
63000.0	67.4	-59.3			109.9	559.6	130.4	13.1	1.000024

UPPER AIR DATA
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GEODETIC COORDINATES
32.48034 LAT DEG
106.42307 LON DEG

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	TEMPERATURE DEWPOINT CENTIGRADE	REL.HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
63500.0	65.8	-59.1			107.1	570.0	127.2	12.8	1.000024
64000.0	64.3	-58.8			104.4	570.4	129.4	12.5	1.000023
64500.0	62.7	-58.5			101.8	570.8	135.0	12.5	1.000023
65000.0	61.3	-58.2			99.3	571.2	144.4	12.8	1.000022
65500.0	59.8	-57.9			96.8	571.6	144.4	12.4	1.000022
66000.0	58.4	-57.6			94.4	572.0	135.8	11.2	1.000021
66500.0	57.0	-57.3			92.0	572.4	125.5	10.4	1.000020
67000.0	55.6	-57.0			89.7	572.8	119.7	10.0	1.000020
67500.0	54.3	-56.7			87.4	573.1	115.7	9.7	1.000019
68000.0	53.0	-56.4			85.3	573.5	111.6	9.5	1.000019
68500.0	51.8	-56.1			83.1	573.9	114.4	11.0	1.000019
69000.0	50.6	-55.8			81.0	574.3	116.9	12.6	1.000018
69500.0	49.4	-55.2			78.9	575.1	118.0	14.2	1.000018
70000.0	48.2	-54.4			76.8	576.2	117.0	15.1	1.000017
70500.0	47.1	-53.6			74.7	577.3	115.7	16.0	1.000017
71000.0	46.0	-53.3			72.9	577.6	114.4	16.7	1.000016
71500.0	44.9	-53.0			71.1	578.0	113.0	16.4	1.000016
72000.0	43.9	-52.7			69.4	578.4	111.6	16.1	1.000015
72500.0	42.9	-52.5			67.7	578.7	110.4	15.9	1.000015
73000.0	41.9	52.2			66.1	579.1	110.5	16.4	1.000015
73500.0	40.9	-51.9			64.5	579.4	110.5	16.9	1.000014
74000.0	40.0	-51.7			62.9	579.8	110.7	17.4	1.000014
74500.0	39.1	-51.4			61.4	580.2	111.7	17.4	1.000014
75000.0	38.2	-51.1			59.9	580.5	112.7	17.4	1.000013
75500.0	37.3	-50.8			58.4	580.9	113.1	17.4	1.000013
76000.0	36.4	-50.6			57.0	581.2	105.4	18.1	1.000013
76500.0	35.6	-50.3			55.6	581.6	98.4	19.1	1.000012
77000.0	34.8	-50.0			54.3	582.0	92.2	20.4	1.000012
77500.0	34.0	-49.7			53.0	582.3	86.7	22.4	1.000012
78000.0	33.2	-49.7			51.8	582.3	85.8	24.5	1.000012
78500.0	32.4	-49.9			50.6	582.0	85.4	26.6	1.000011
79000.0	31.7	-50.2			49.5	581.7	83.2	26.9	1.000011
79500.0	31.0	-50.4			48.4	581.5	83.3	27.1	1.000011
80000.0	30.3	-50.6			47.4	581.2	83.3	27.2	1.000011
80500.0	29.6	-50.5			46.3	581.2	83.0	27.4	1.000010
81000.0	28.9	-50.3			45.2	581.6	82.6	27.7	1.000010
81500.0	28.2	-50.1			44.1	581.9	82.2	28.0	1.000010
82000.0	27.6	-49.8			43.1	582.2	82.1	28.6	1.000010
82500.0	27.0	-49.6			42.0	582.5	82.5	29.7	1.000009
83000.0	26.4	-49.3			41.0	582.8	82.8	30.7	1.000009

UPPER AIR DATA
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2 JULY 79 1330 HRS MST
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GEODETIC COORDINATES
32.48034 LAT DEG
106.42307 LON DEG

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	TEMPERATURE DEWPOINT CENTIGRADE	REL.HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(T.N)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
83500.0	25.8	-49.1			40.1	583.1	83.4	31.8	1.000009
84000.0	25.2	-49.8			39.1	583.5	84.6	33.1	1.000009
84500.0	24.6	-48.6			38.2	583.8	85.8	34.5	1.000008
85000.0	24.1	-48.4			37.3	584.1	86.9	35.8	1.000008
85500.0	23.5	-48.1			36.4	584.4	88.2	36.4	1.000008
86000.0	23.0	-47.9			35.5	584.7	89.3	37.1	1.000008
86500.0	22.5	-47.6			34.7	585.0	90.5	37.7	1.000008
87000.0	21.9	-47.4			33.9	585.4	90.3	38.2	1.000008
87500.0	21.4	-47.1			33.1	585.7	89.8	38.6	1.000007
88000.0	21.0	-46.9			32.3	586.0	89.3	39.0	1.000007
88500.0	20.5	-46.7			31.5	586.3	88.9	39.2	1.000007
89000.0	20.0	-46.4			30.8	586.6	88.6	39.3	1.000007
89500.0	19.6	-45.9			30.0	587.3	88.4	39.4	1.000007
90000.0	19.1	-45.4			29.3	587.9	87.6	39.5	1.000007
90500.0	18.7	-44.9			28.6	588.6	86.8	39.6	1.000006
91000.0	18.3	-44.4			27.9	589.3	86.9	39.7	1.000006
91500.0	17.9	-43.8			27.2	589.9	82.0	39.9	1.000006
92000.0	17.5	-43.3			26.6	590.6	79.5	40.9	1.000006
92500.0	17.1	-42.8			25.9	591.3	77.7	42.1	1.000006
93000.0	16.8	-42.3			25.3	591.9	75.7	43.3	1.000006
93500.0	16.4	-41.8			24.7	592.6	75.0	44.4	1.000005
94000.0	16.0	-41.3			24.1	593.2	75.8	45.3	1.000005
94500.0	15.7	-40.7			23.5	593.9	76.5	46.2	1.000005
95000.0	15.3	-40.2			23.0	594.6	77.4	47.0	1.000005
95500.0	15.0	-39.7			22.4	595.2	80.5	46.3	1.000005
96000.0	14.7	-39.2			21.9	595.9	83.6	45.8	1.000005
96500.0	14.4	-38.7			21.3	596.5	86.9	45.3	1.000005
97000.0	14.0	-38.2			20.8	597.2	89.9	44.0	1.000005
97500.0	13.7	-37.6			20.3	597.9	92.9	42.1	1.000005
98000.0	13.4	-37.1			19.8	598.5	96.2	40.4	1.000004
98500.0	13.1	-36.6			19.4	599.2			1.000004
99000.0	12.9	-36.1			18.9	599.8			1.000004
99500.0	12.6	-35.6			18.4	600.5			1.000004
100000.0	12.3	-35.1			18.0	601.1			1.000004
100500.0	12.0	-34.6			17.6	601.8			1.000004

MRN SIGNIFICANT LEVEL DATA
1830060224
S M R

STATION ALTITUDE 3997.30 FEET MSL
2 JULY 79 1330 HRS MST
ASCENSION NO. 224

GEODETIC COORDINATES
32.48034 LAT DEG
106.42307 LON DEG

GEOPOTENTIAL ALTITUDE DECAMETERS	WIND DATA DIRECTION DEG (TN)	SPEED MPS	N-S MPS	E-W MPS	DEW PT DEP DEG C	TEMPERATURE AIR DEG C	PRESSURE MILLIBARS
3060.	9999.**	9999.**	-9999.**	-9999.**	99	-34.1	1.180+1
2700.	89.	20.	-0.	-20.	99	-46.4	2.000+1
2434.	83.	14.	-2.	-14.	99	-50.7	3.000+1
2360.	87.	12.	-1.	-12.	99	-49.6	3.360+1
2139.	116.	8.	4.	-7.	99	-53.6	4.720+1
2102.	118.	7.	3.	-6.	99	-55.7	5.000+1
1890.	147.	7.	6.	-4.	99	-59.8	7.000+1
1865.	170.	10.	10.	-2.	99	-62.4	7.280+1
1796.	170.	11.	10.	-2.	99	-61.2	8.140+1
1774.	169.	10.	10.	-2.	99	-65.1	8.440+1
1671.	186.	11.	11.	1.	99	-67.5	1.000+2

** WIND DATA NOT COMPUTED DUE TO MISSING RAW AZIMUTH AND ELEVATION ANGLES.

STATION ALTITUDE 5997.30 FEET MSL
2 JULY 79 1330 HRS MST
ASCENSION NO. 224

MANDATORY LEVELS
1830060224
S M R

GEODETIC COORDINATES
32.48034 LAT DEG
106.42307 LON DEG

PRESSURE	GEOPOTENTIAL	TEMPERATURE		REL.HUM.	WIND DATA	
		AIR	DEWPOINT		DIRECTION	SPEED
MILLIBARS	FEET	DEGREES CENTIGRADE		PERCENT	DEGREES(TN)	KNOTS
850.0	4915.	28.6	9.3	30.	111.4	3.0
800.0	8666.	23.8	9.5	40.	69.5	5.5
750.0	8504.	18.5	8.7	53.	253.8	2.5
700.0	10428.	12.2	7.1	71.	256.7	5.0
650.0	12451.	7.1	4.0	81.	263.1	15.0
600.0	14603.	3.8	-2.3	64.	244.3	23.0
550.0	16900.	-1.9	-7.4	66.	244.3	24.6
500.0	19368.	-6.4	-19.6	34.	244.0	22.3
450.0	22054.	-10.5	-33.5	13.	215.3	12.7
400.0	24987.	-16.9	-38.0	14.	211.7	20.4
350.0	28243.	-22.9	-45.2	11.	196.0	25.1
300.0	31889.	-31.6			210.2	23.0
250.0	36025.	-42.5			222.4	26.7
200.0	40861.	-52.8			231.2	47.6
175.0	43659.	-56.3			223.9	37.0
150.0	46819.	-62.5			210.7	35.1
125.0	50455.	-68.2			207.3	33.1
100.0	54834.	-67.5			185.7	20.6
80.0	59289.	-61.4			171.0	21.1
70.0	62003.	-59.8			148.4	14.6
60.0	65177.	-57.9			146.2	12.7
50.0	68968.	-55.7			117.8	13.3
40.0	73685.	-51.7			110.6	17.4
30.0	79842.	-50.7			83.3	27.3
25.0	83757.	-48.8			84.9	33.4
20.0	88594.	-46.4			88.7	39.3
15.0	94955.	-39.7			79.8	46.5

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

MRN MANDATORY LEVELS
1830060224
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2 JULY 79 1330 HRS MST
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GEODETIC COORDINATES
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GEOPOTENTIAL ALTITUDE DECAMETERS	WIND DATA DIRECTION DEG (TN)	SPEED MPS	N-S MPS	E-W MPS	DEW PT DEP DEG C	TEMPERATURE AIR DEG C	PRESSURE MILLIBARS
2894.	80.	24.	-4.	-24.	99	-39.7	1.500+1
2700.	89.	20.	-0.	-20.	99	-46.4	2.000+1
2553.	85.	17.	-2.	-17.	99	-48.8	2.500+1
2434.	83.	14.	-2.	-14.	99	-50.7	3.000+1
2246.	111.	9.	3.	-8.	99	-51.7	4.000+1
2102.	118.	7.	3.	-6.	99	-55.7	5.000+1
1987.	146.	7.	5.	-4.	99	-57.9	6.000+1
1890.	148.	7.	6.	-4.	99	-59.8	7.000+1
1807.	171.	11.	11.	-2.	99	-61.4	8.000+1
1671.	186.	11.	11.	1.	99	-67.5	1.000+2
1538.	207.	17.	15.	8.	99	-68.2	1.250+2
1427.	211.	18.	16.	9.	99	-62.5	1.500+2
1331.	224.	19.	14.	13.	99	-56.3	1.750+2
1245.	231.	25.	15.	19.	99	-52.8	2.000+2
1098.	222.	14.	10.	9.	99	-42.5	2.500+2
972.	210.	12.	10.	6.	99	-31.6	3.000+2
861.	196.	13.	12.	4.	22	-22.9	3.500+2
762.	212.	11.	9.	6.	21	-16.9	4.000+2
672.	215.	7.	5.	4.	23	-10.5	4.500+2
590.	244.	11.	5.	10.	13	-6.4	5.000+2
515.	244.	13.	5.	11.	05	-1.9	5.500+2
445.	244.	12.	5.	11.	06	3.8	6.000+2
380.	263.	8.	1.	8.	03	7.1	6.500+2
318.	257.	3.	1.	3.	05	12.2	7.000+2
259.	254.	1.	0.	1.	10	18.5	7.500+2
203.	69.	3.	-1.	-3.	14	23.8	8.000+2
150.	111.	2.	1.	-1.	19	28.6	8.500+2